

Claim Amendments

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claims 1-17. (Canceled)

Claim 18. (New) A process for preparing an aqueous polymer dispersion, by

- a) preparing an initial charge of an aqueous emulsion of a long chain alcohol or a seed latex by polymerization of alkyl (meth)acrylates in an aqueous medium containing an emulsifier to a seed particle radius ranging from 3.0 to 20.0 nm
- b) adding from 25.0 to 45.0 parts by weight of a first composition comprising:

- A) from 50.0 to 99.9 parts by weight of alkyl methacrylates having from 1 to 20 carbon atoms in the alkyl radical,
- B) from 0.0 to 40.0 parts by weight of alkyl acrylates having from 1 to 20 carbon atoms in the alkyl radical,
- C) from 0.1 to 10.0 parts by weight of crosslinking monomers, and
- D) from 0.0 to 8.0 parts by weight of styrenic monomers of the formula (I)



where each of the radicals R¹ to R⁵, independently of the others, is hydrogen, a halogen, a C₁₋₆-alkyl group or a C₂₋₆-alkenyl group, and the radical R⁶ is hydrogen or an alkyl group having from 1 to 6 carbon atoms, emulsified in water with an emulsifier, to said aqueous emulsion or seed latex, and

polymerizing the added monomers to a conversion of at least 85.0 % by weight, based on the total weight of components A), B), C) and D),

c) adding from 35.0 to 55.0 parts by weight of a second composition comprising

- E) from 80.0 to 100.0 parts by weight of (meth)acrylates,
- F) from 0.05 to 10.0 parts by weight of crosslinking monomers,

and

G) from 0.0 to 20.0 parts by weight of styrenic monomers of the formula (I), emulsified in water with an emulsifier, to the aqueous polymer emulsion of step (b), and

polymerizing the added monomers to a conversion of at least 85.0 % by weight, based on the total weight of components E), F) and G),

d) adding from 10.0 to 30.0 parts by weight of a third composition comprising:

H) from 50.0 to 100.0 parts by weight of alkyl methacrylates having from 1 to 20 carbon atoms in the alkyl radical,

I) from 0.0 to 40.0 parts by weight of alkyl acrylates having from 1 to 20 carbon atoms in the alkyl radical, and

J) from 0.0 to 10.0 parts by weight of styrenic monomers of the formula (I), emulsified in water with an emulsifier, to the aqueous polymer emulsion of step (c),

and polymerizing to a conversion of at least 85.0 % by weight, based on the total weight of components H), I) and J),

where the parts by weight given for the compositions b), c) and d) give a total of 100.0 parts by weight,

wherein

e) each polymerization is carried out at a temperature in the range from above 60 to below 90° C and

f) the relative proportions of all of the substances are selected in such a way that the total weight of components A) to J), based on the total weight of the aqueous dispersion, is greater than 50.0 % by weight.

Claim 19. (New) The process according to Claim 18, wherein an aqueous dispersion is prepared which comprises less than 5.0, based on its total weight.

Claim 20. (New) The process according to Claim 18, wherein the initial charge comprises from 90.00 to 99.99 parts by weight of water and from 0.01 to 10.00 parts by weight of emulsifier, where the parts by weight of said amounts give a total of 100.00 parts by weight.

Claim 21. (New) The process according to claim 18, wherein said emulsifier is an anionic or nonionic emulsifier.

Claim 22. (New) The process according to claim 18, wherein said initial charge is said seed latex.

Claim 23. (New) The process according to Claim 18, wherein a seed latex whose particle radius, measured by the Coulter method, is in the range from 5.0 to 20.0 nm is used to form an initial charge.

Claim 24. (New) The process according to claim 18, wherein said initial charge is an aqueous emulsion is said emulsion of said alkyl alcohol having from 12 to 20 carbon atoms in the alkyl radical.

Claim 25. (New) The process according to claim 18, wherein the polymerization in steps b) to d) is initiated with a peroxodisulphate.

Claim 26. (New) The process according to claim 25, wherein the peroxidisulphate is ammonium and/or alkali metal peroxodisulphate.

Claim 27. (New) The process according to claim 18, wherein the relative proportions of all of the substances are selected in such a way that core-shell particles are obtained with an overall radius, measured by the Coulter method, in the range from 150.0 to less than 250.0 nm.

Claim 28. (New) The process according to claim 18, wherein the second and the third monomer mixture are metered in as required by consumption.

Claim 29. (New) Core-shell particles obtained by a process according to claim 18.

Claim 30. (New) A moulding composition comprising:
based in each case on its total weight, of

- A) from 1.0 to 50.0 % by weight of at least one core-shell particle according to Claim 29,
- B) from 1.0 to 99.0 % by weight of at least one (meth)acrylic polymer,
- C) from 0.0 to 45 % by weight of styrene-acrylonitrile polymers, and
- D) from 0.0 to 10.0 % by weight of other additives

where the percentages by weight give 100.0 % by weight in total.

Claim 31. (New) The moulding composition according to Claim 30, wherein the (meth)acrylic polymer encompasses, based in each case on its total weight, of

- a) from 50.0 to 100.0 % by weight of alkyl methacrylate repeat units having from 1 to 20 carbon atoms in the alkyl radical,
- b) from 0.0 to 40.0 % by weight of alkyl acrylate repeat units having from 1 to 20 carbon atoms in the alkyl radical and
- c) from 0.0 to 8.0 % by weight of styrenic repeat units of the formula (I),

where the percentages by weight give 100.0 % by weight in total.

Claim 32. (New) The moulding composition according to Claim 29 wherein the moulding composition comprises styrene acrylonitrile copolymers, where the styrene acrylonitrile copolymers are obtained by polymerizing any mixture which is composed of

- from 70 to 92 % by weight of styrene,
- from 8 to 30 % by weight of acrylonitrile, and
- from 0 to 22 % by weight of other comonomers, based in each case on the total weight of the monomers to be polymerized.

Claim 33. (New) The moulding composition according to claim 30, wherein the moulding composition comprises, based on its total weight, from 0.1 to 10.0 % by weight of another polymer whose weight-average molecular weight is higher by at least 10 % than that of the (meth)acrylic polymer.

Claim 34. (New) A moulding obtained from a moulding composition according to claim 30.

Claim 35. (New) The moulding according to Claim 34, wherein the moulding has a

Vicat softening point ISO 306 (B50) of at least 85, a notched impact strength NIS (Charpy 179/1eA) to ISO 179 of at least 6.0 kJ/m² at 23° C and of at least 2.5 kJ/m² at -10° C, a modulus of elasticity to ISO 527-2 of at least 1500 Pa s, a haze to ASTM D 1003 (1997) of at most 2.5 %, a transmittance (D 65/10°) to DIN 5033/5036 of at least 88.5 %.

Claim 36. (New) The moulding according to Claim 35, wherein the moulding has a Vicat softening point ISO 306 (B50) of at least 90° C.

Claim 37. (New) The moulding according to Claim 36, wherein the moulding has a Vicat softening point ISO 306 (B50) of at least 93° C.

Claim 38. (New) A core-shell particle obtained by a process according to claim 23.